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20. ABSTRACT (Continued)

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DATA BASE DEVELOPMENT FOR SHIP READINESS ANALYSES

November 1984

DATA BASE DEVELOPMENT FOR SHIP READINESS ANALYSES

William H. King and Dona C. Zimmerman

November 1984

The BDM Services Corporation and the

Naval Postgraduate School

Monterey, CA 93940

The data base development reported here was done in preparation for studies sponsored by the Office of The Chief of Naval Operations (NOP-914)

ABSTRACT

Files were constructed at the Defense Manpower Data Center (DMDC) for analyis of ship readiness. Navy enlisted personnel attached to the ships, in each observed ship class, were selected. Service-entry information was supplemented with updated quarterly data, for the quarters ending 7609 to 8303, resulting in individual longitudinal records. The Active Duty Military Master and Loss Edit provided the entry and quarterly information for each record.

Extractions from the 2754 position file were made for computational purposes. In addition, binary coding format was converted to character format on tapes sent to the Center for Naval Analysis (CNA) to meet computer system specifications. These files were used to examine personnel attributes in relation to ship readiness, but also provide excellent sources of data for a variety of applications.

FOREWORD

File extractions, concatenations and recoding procedures were done by Mr. William H. King of BDM Services, utilizing DMDC software (shown in the appendix). Ms. Barbara Cunningham of DMDC wrote the PL-1 program providing the ships' personnel requirements and fill-ratios. Dr. William E. McGarvey, of the Naval Postgraduate School, used the constructed "working file", for his statistical analyses.

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DATA BASE DEVELOPMENT FOR SHIP READINESS ANALYSES

I. RECORD SELECTION

The Defense Manpower Data Center (DMDC) serves as a central facility within the Department of Defense for the collection and integration of personnel data. The DMDC Active Duty Military Master and Loss File, contains extracts of each individual's personnel file, and is updated on a quarterly basis with information received from the Navy Military Personnel Center (NMPC). This file of Navy enlisted personnel data was used as the initial database for this study, and was supplemented with data from the DMDC Active Duty Military Master and Loss File, described in Table 1.

The entire set of Navy enlisted personnel records was selected for all personnel attached to the ships in each of the observed classes, listed in Table 2. The Unit Identification Code (UIC) of each ship is unique and was used in selecting the personnel records for the analysis. These records contain both current information on each individual at the date of the record and information from that individual's record at time of entry to active duty. Personnel records were selected for each quarter from 30 September 1976 to 31 March 1983, a total of 27 time-periods.

II. FORMATION OF INDIVIDUAL LONGITUDINAL RECORDS

For any person attached to any of the given ships (UICs) during these periods, a longitudinal record was constructed

TABLE 1. ACTIVE DUTY MILITARY MASTER AND LOSS EDIT FILE FORMAT

Record length = 150
(The first 54 bytes were used to create the initial file.)

Column(s)	Description
1-4 5-6 7-8 9-10 11 12 13 14 15-17	Social Security Number Total Active Federal Military Service DoD Primary Occupation Group DoD Duty Occupation Group Highest Year of Education AFQT Percentile (Enlisted) Paygrade Home of Record: State or County Date of Birth (Year/Month/Day) Service
19 20 21 22 23 24 25 26 27 28	Race Source of Entry (Officer) * Filler Marital Status Number of Dependents File Date Ethnic Group Race Ethnic Affiliation Sex Education * Mental Category (Enl)
29-30 31 32 33	Years of Commissioned Service (Off) DoD Secondary Occupation Code Mental Category (Enlisted) Age at Entry Age at Separation (Loss) Current Age (Master)
34-40	Primary MOS or Navy Officer Designator
41-43 44 45-47	Separation Program Designator (Loss) Interservice Separation Code (Loss) Date of Separation (Loss) or Soft Expiration Term of Service (Master) (Year/Month/Date)
48-50 51-52 53-54 55-56	Basic Active Service Date (Year/Month/Date) Expiration Term of Service (Year/Month) Date of Current Paygrade (Year/Month) Date of Latest Enlistment (Enlisted)/ Date of Entry to Officer Ranks (Officer) (Year/Month) Component
57 58 59	Year of Active Duty Service Time in Grade

TABLE 1. ACTIVE DUTY MILITARY MASTER AND LOSS EDIT FILE FORMAT (CONTINUED)

Column(s)	Description
60 61 62 63-64	Character of Service (Enlisted-Loss) Service Category (Officer)/VRBM (Enlisted) Flying Status (Officer)/Propay (Enlisted) Reenlistment Eligibility (Enlisted)/
65 - 67 68	Flight Pay Status (Officer) * Pay Entry Base Date (Year/Month/Date) Score Group (Enlisted) *
69-74 75 76-77	Unit Identification Code * Spanish Surname Flag Filler
78-84 85-90 91-95	Duty MOS/AQD (Naval Officer) * Program Element Code * Zip Code *
96-99 100 101-105	Name (First Four Positions) Gain/Loss Code Home of Record Zip Code *
106 107 108	Highest Year of Education Marital/Dependents Status Test Form AFOT Percentile (Original MEPCOM)
109 110 111-126	Mental Category (Original MEPCOM) Aptitude Area Scores * Service
127 128 129	Prior Service Waiver Code Date of Entry (Year/Month/Date)
130-132 133 134-138	Term of Enlistment Enlistment Option/Enlistment Program* Bonus Option
139 140 141-145 146	Enlistment Option Training MOS * AFQT Percentile (Original Master)
147 148 149-150	Mental Category (Original Master) Renorm Flag Filler

Note: The (*) denotes that the data element is coded in character format, otherwise in binary format.

with updated information from positions five to fifty-four of the Master and Loss Edit. (See program entitled EXTRACT BDM in the appendix). Cross-sectional analysis is also feasible because quarterly information may be readily accessed.

Application of these extraction procedures resulted in the combination of several thousand personnel records. Presented below are the numbers of ships and personnel for the ship classes considered in the study.

SHIP CLASSES AND NUMBER OF SHIPS AND PERSONNEL ANALYZED

	NUMBER	NUMBER
SHIP CLASSES/TYPES	OF SHIPS	OF PERSONNEL
CG	23	32940
CGN	9	16049
DD963	30	22346
DDG2	24	30374
DDG37	10	14350
FF	59	56392
FFG	38	12612

Quarterly files were linked together by Social Security Number (SSN) for each individual serving on any of the given ships resulting in a 2754 byte record for each individual. Although an individual may have been attached to two or more ships during the 27 quarters, only a single record is constructed for that case. The current information on individual records for each quarter is inserted in predetermined sections on the individual's records; should an individual not have been attached to one of the ships during that quarter, zeros were inserted as fillers in that section for that individual's record. (See program MATCHMAG BDM). The Match/Merge file format is shown in Table 3.

An illustration of the file merging process may clarify these conditions. The file from 30 September 1976 is matched with the file from 31 December 1976. All records from the first file are written to a transaction file and, where matches occur, the 30 September 1976 data are followed by the 31 December 1976 data. Should an individual active on a September 1976 ship not be attached to any of the ships in December 1976, then zeros are inserted in the "Quarter 2" section of that record.

If a another individual joined the cohort in, for example, December 1976, then zeros would be inserted in the "Quarter 1" section (where September 1976 data would have been placed) and the December 1976 file would be added to the end of the combined record. This combined data would then be matched against the "Quarter 3" (March 1977) file. All records from the combined data would then be written into a new file and any matches from the March 1977 file would be added to the end of this record. Should a match with the March 1977 file not be found (e.g., attrition from the cohort), then zeros would be inserted into that part of the new record. For instance, a new individual, joining in March 1977, would be added to the

TABLE 3. MATCH/MERGE FILE FORMAT

Record length = 2754

Column(s)	Description
1-4 5-9 10 11 12 13 14 15-30 31 32 33 34-36 37 38-42	Social Security Number Home of Record Zip Code * Highest Year of Education Marital/Dependents Status Test Form AFQT Percentile (Original MEPCOM) Mental Category (Original MEPCOM) Aptitude Area Scores * Service Prior Service Waiver Code Date of Entry (Year/Month/Date) Term of Enlistment Enlistment Option/Enlistment Program*
43 44 45-49 50 51 52 53-54	Bonus Option Enlistment Option Training MOS * AFQT Percentile (Original Master) Mental Category (Original Master) Renorm Flag Filler

---record fields to which quarterly data are assigned---

55-154	Quarterly	data	for	quarter	ending	7609
155-254	Ħ	11	11	111	п	7612
255-354	н	11	17	21	Ħ	7703
355-454	11	TT .	17	Ħ	11	7706
455-554	п	11	11	11	TT	7709
555-654	n	Ħ	**	H	11	7712
655-754	11	**	11	71	H	7803
755-854	π	11	11	11	11	7806
	Ħ	11	***	H	ıπ	7809
855-954	H	п	11	n	11	
955-1054						7812
1055-1154	Ħ	11	111	- 11	11	7903
1155-1254	Ħ	11	11	11	n	7906
1255-1354	11		n	n	н	7909
1355-1454	T T	17	71	H	n	7912
1455-1554	11	11	H	H	n	8003
1555-1654	II	**	11	11	n	8006
1655-1754	п	m	11	77	n	8009
1755-1854	11	11	11	77	11	8012
1855-1954	n	77	11	en.	n	8103
	n	н	m	n	n	
1955-2054			•			8106
2055-2154	m	71	11		**	8109
	12					

TABLE 3. MATCH/MERGE FILE FORMAT (CONTINUED)

Column(s)		Description	on-				
2155-2254 2255-2354 2355-2454 2455-2554 2555-2654 2655-2754		Quarterly	data " " "	for o	quarter	ending	8112 8203 8206 8209 8212 8303
	List of Data (Example: P						
55-58 59-60 61-62 63-64 65 66 67 68 69-71 72 73 74 75 76 77 78 79 80 81 82 83-84 85 86 87		Social Sectotal Act. Dod Prima Dod Duty Highest Yea AFQT Perce Paygrade Home of R Date of B Service Race Source of Filler Marital S Number of File Date Ethnic Gr Race Ethn Sex Education Years of Dod Secon Mental Ca Age at En Age at Se	ive Ferry Occupation of the cord of the committee of the committee of the committee of the cord of the	edera cupat ation f Edu e (En : Sta (Year y (Of ndent ntal ssion Occup y (En	l Milit ional G al Grou cation listed) te or C /Month/ ficer) s Categor ed Serv vational listed) Loss)/C	roup p ounty Date) * Cy (ENL) rice (OF	F)
88-94 95-97 98 99-101		Primary M Separation Interserv Date of	on Price S	ogra: epara	tor (Na m Design tion Co on (Lo	val Off gnator de (Los	(Loss)* s) ft ETS
102-104		(Year/Mon Basic Act				(Year/M	ionth/
105-106		Expiratio		m of	Service	Date Date	.e)
107-108		(Year/Mon Date of C 13		t Pay	grade (Year/Mo	onth)

TABLE 3. MATCH/MERGE FILE FORMAT (CONTINUED)

Column(s)	Description
109-110	Date of Latest Enlistment (Enlisted)/ Date of Entry to Officer Ranks (Officer) (Year/Month)
111	Component
112	Year of Active Duty Service
113	Time in Grade
114	Character of Service (Enlisted-Loss)
115	Service Category (Officer) / VRBM (Enlisted)
116	Flying Status (Officer)/Propay (Enlisted)
117-118	Reenlistment Eligibility (Enlisted)/ Flight Pay Status (Officer) *
119-121	Pay Entry Base Date (Year/Month/Date)
122	Score Group (Enlisted) *
123-128	Unit Identification Code *
129	Spanish Surname Flag
130-131	Filler
132-138	Duty MOS/AQD (Naval Officer) *
139-144	Program Element Code *
145-149	Zip Code *
150-153	Name (First Four Positions)
154	Gain/Loss Code

Note: Positions 55 to 2754 contain the 100 bytes of information shown in columns 55 to 154, which is updated and entered in sequence for each quarter. The (*) denotes that the data element is coded in character format, otherwise in binary format.

combined file by inserting zeros where September and December 1976 data would have been located and then the March data would be added at the end of the zeros. At another stage of file preparation, these "filler zeros" were recoded as missing data. The succeeding quarterly files were interatively matched and joined in this manner.

III. FILE EXTRACTIONS

The constructed record can be used to determine which personnel are attached to which, if any, of the given ships for any of the 27 quarters under consideration. Accession information, along with the Social Security Number obtained the first time each individual record is observed, were inserted at the beginning of the constructed record.

Because the concatenation yielded a relatively extended record length of 2754 bytes, two reduction measures were adopted to form a Working File depicted in Table 4. In the first stage, a 1400 byte record was extracted, containing accession information, e.g., ASVAB subscale scores, date of entry, marital status, and mental group category. Also included were quarterly updates such as Naval Enlistment Classification code (NEC), paygrade, years of active duty, and time in grade (See EXTRACT NPS). The second stage involved extraction of only those elements deemed necessary for the analysis. For each case, these variables included: (a) Armed Forces Qualifying Test (AFQT) score; (b) high-school degree status; (c) age at accession; (d) present

TABLE 4. WORKING FILE FORMAT

Description

Column(s)

1151-1200

1-4	Social Sec	curity	Numl	oer		
5	Filler					
6	Highest Ye					
7	Marital/De	epende	nts i	Status		
8	Test Form					
9	AFQT Perce	entile	e (Or	iginal 1	MEPCOM)	
10	Mental Ca	tegory	(Or	iginal 1	MEPCOM)	
11-26	Aptitude A	Area S	core	S		
27	Service					
28	Prior Serv					
29	Waiver Co					
30-32	Date of E			/Month/	Date) *	
33	Term of E					
34-38	Enlistmen		on/E	nlistme	nt Progr	cam*
39	Bonus Opt					-
40	Enlistmen		on			
41-45	Training 1			1 - 1 1 - 1	Works w/	
46	AFQT Perc					
47	Mental Ca		(Of	iginai i	mastel)	
48	Renorm Fl. Filler	ag				
49-50	LITTEL					
record fields to	which quar	tarly	data	are ac	-bernies	
lecold lields to	which quar	. cerry	uace	are ar	bigned	
51-100	Quarterly	data	for	quarter	ending	7609
101-150	п	11	11	11	п	7612
151-200	û	Ĭ	ù	Ţ.	û	7703
201-250	ù	tı	"	û	11	7706
251-300	п	Ħ	H	ú	11	770 9
310-350	**	**	17	11	n	7712
351-400	91	ù	15	ti	n	7803
401-450	ú	ù	ú	ú	ú	7806
451-500	n	10	17	n	n	7809
501-550	, m	TT .	ά	ii.	n	7812
551-600	ú	W.	ņ	77	n	7903
601-650	ű,	ū				7906
651-700	17	4	n	11.		7909
701-750	ú	, ii	11	17	Ü	7912
751-800	π -	ņ	11	ů	ū	8003
801-850		ù	ŭ	77		8006
851-900	"	ù	n		ú	8009
901-950			11	"	ú	8012
951-1000	ņ	n	TT TT	ņ	n n	8103
1001-1050				ii ii	8	8106
1051-1100	100	u ù	n n	π.	n	8109
1101-1150	100	n n	10	77	TI.	8112
	71	7.5	44	4.0	**	A / I I 4

16

8203

TABLE 4. WORKING FILE FORMAT (CONTINUED)

Description

Column(s)

1201-1250 1251-1300 1301-1350		11 11	11 11	n n	ii ii	ù ù	8206 8209 8212	
1351-1400		. 11	71	n	81	ū	8303	
	List of Data (Example: 1					r		
51-52 53 54 55 56-58 59 60 61 62 63 64 65-67 68-71 72-74 75-76 77-78 79 80 81 82 83 84 85-87 88-90 91-94		Expirati Highest AFQT Per Paygrade Date of Marital Number o Sex Mental C Age at E Age at F Rate * Naval En Basic Ac Date Of Componen Year of Time in VRBM/SRB Propay Score Gr Last thr Code (UI Duty Rat Duty NEC	Year ocentil Birth Status f Depe ategor ntry ile Da listme tive S Paygra Latest Active Grade M oup ee num C) * e *	f Educe (Year, ndents y (En) te nt Cla ervice de (Year) Duty	Month/I slisted) assificate Date ear/Montstment	ation ch)	(NEC) * Month)	'n
95-100		Program	Fremen	L Code	e "			

Note: Positions 51 to 1400 contain the 50 bytes of information shwon in columns 51-100, which is updated and entered in sequence for each quarter. The (*) denotes that the data element is coded in character format, otherwise in binary format.

age; (e) paygrade; (f) years of active duty; (g) number of months in current paygrade; and (h) a logical condition (labelled "returner") indicating service in that rating aboard that ship in the prior quarter. Aggregation by rating on these variables was the next analytic stage. This file was made available to Dr. W.E. McGarvey at the Naval Postgraduate School, for his analysis.

IV. DATA AGGREGATION PROCEDURES

Utilizing Statistical Analysis System (SAS) software, aggregation was accomplished by:

- selecting only those individuals who served in a given rating during at least one of the 27 quarters;
- recoding "filler zeros" as missing data;
- 3. for each quarter, and for each ship with any active personnel aboard in that quarter, aggregating across individuals on the selected attributes associated with that rating (high-school degrees, "returners", AFQT scores, entry ages, present ages, paygrades, years of active duty, and months in current paygrades) and computing central tendency measures for that rating;
- 4. merging by ship and quarter the aggregated measures for each rating within ship and within quarter, and writing a new file; and
- merging aggregated rating data for different ratings
 within each ship and quarter.

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Thus, the aggregate characteristics of all ratings within a given ship (or ships) within a given quarter (or quarters) can be examined, and selected ratings may also be examined. Regression models were used to examine the collective data for a given department across several ships and certain ratings, across several ships, and across three classes of ships.

V. ADDITIONAL DATA BASE DEVELOPMENT

A second data base was generated which included, by rating, information about each of the ship's billets. Such billet data included: (a) number authorized; (b) number assigned; and (c) the fill-ratio. The fill-ratio was computed as the number of personnel on board divided by the number required. The number required for each ship, by department and rating, were provided by OPNAV-914 from the Ship Manning Document (SMD) files.

A third data base was composed of statistical summary reports provided by the Navy Ships Parts Control Center (SPCC), Mechanicsburg, Pa. The data included information provided by the individual units through the Consolidated Casualty Reporting System (CASREP).

The casualty reporting (CASREP) system provides a timely method for reporting equipment failures and the effect of these failures on the capability of the reporting units. The CASREP system is designed to assist in identifying problem equipment, supply support deficiencies, maintenance difficulties, etc., which tend to reduce the combat readiness of the Navy. Reported

by the individual ships, the CASREPs are compiled by SPCC.

Eight measures were extracted from these CASREP data, and three others were derived from them. The three data files were then merged into one file that contained for each quarter the personnel characteristics, fill-ratios and CASREP data for each ship.

The different files for each ship class were recorded (see program EXRECODE CNA) and forwarded to Center for Naval Analysis (CNA) for additional analysis. The recoding of binary to character data was necessary due to the differences in the two computer systems. The resulting file format is given in Table 5.

Additional tabulations provided information about personnel authorization and assignments for specific ratings by ship class and UIC. A PL-1 program (entitled BDM SHIPS in the appendix) was used for this analysis. Table 6 exemplifies the output produced for each quarter.

TABLE 5. CENTER FOR NAVAL ANALYSIS (CNA) FILE FORMAT

Column(s)	Description
1-9 10-11 12-13 14-15 16-17 18 19-66	Social Security Number Highest Year of Education Marital/Dependents Status Test Form AFQT (Original MEPCOM) Mental Category (Original MEPCOM) Aptitude Area Scores (expanded to three positions for each of the 16 areas)
67-68 69-70 71-72 73-78	Service Prior Service Waiver Code Date of Entry (Year/Month/Date)
79-80 81-85 86-87 88-89	Term of Enlistment Enlistment Option Program Bonus Option Enlistment Option
90-94 95-96 97 98-100	Training MOS AGQT Percentile (Original Master) Mental Category (Original Master) Renorm Flag Expiration Term of Serive Date (Year/Month)
101-104 105-106 107-108 109-110 111-116	Highest Year of Education AFQT Percentile Paygrade Date of Birth (Year/Month/Date)
117-118 119-120 121 122-123	Marital Status Dependents Sex AFQT Group
124-125 126-127 128-130 131-134	Age at Entry Present Age Rate Naval Enlistment Classification (NEC) Page Active Service Date (Vear/Month/Date)
135-140 141-144 145-148 149 150-151	Base Active Service Date (Year/Month/Date) Date of Paygrade (Year/Month) Date of Latest Enlistment (Year/Month) Regular/Reserve Year of Active Duty
152-153 154-155 156-157 158-159	Time in Grade VRBM Propay Score Group
160-162 163-165 166-169	Last Three Number of Unit Identification Code (UIC) Duty Rate Duty NEC
170-175	Program Element Code 21

TABLE 5. CENTER FOR NAVAL ANALYSIS (CNA) FILE FORMAT (CONTINUED)

Column(s)

Description

---record fields to which quarterly data are assigned---

101-175	Quarterly	data	for	quarter	ending	7609	
176-250	11	T	77	М	91	7612	
251-325	ú	n	91	m	m	7703	
326-400	Ħ	n	ij.	ú	n	7706	
401-475	T	W.	Ħ	89	n	7709	
476-550	Ħ	***	Ħ	TT .	п	7712	
551-625	11	ú	11	ú	11	7803	
626-700	11	11	EA.	n	Ħ	7806	
701-775	n			n	n	7809	
776-850		Ħ	W	- Ü	ù	7812	
851-925	и	17	Ħ	n .	, gr	7903	
926-1000		11	17	11	11	7906	
1001-1075	п	91		11	tr	7909	
1076-1150		11	11	- 11	ii.	7912	
1151-1225	11	17	m	ń	ú	8003	
1226-1300	ú	11	11	Ħ	ņ	8006	
1301-1375	11	Ħ	п	er .	н	8009	
1376-1450	11	n	Ħ		n	8012	
1451-1525	п	11	п	91	п	8103	
1526-1600	Ų	n	11	H	n	8106	
1601-1675	11	rt	11	n	n	8109	
1676-1750	11	11	***	n	n	8112	
1751-1825	21	n	11	n	п	8203	
1826-1900	**	n	311	ų	11	8206	
	п	11	n	17	Ħ	8209	
1901-1975	n	11	11	97	11	8212	
1976-2150	n	и	11	n	n	8303	
2051-2125						0303	

Note: All data elements are coded in character format. The quarterly information in positions 101 to 2125 is the same as that contained in positions 51 to 1400 in Table 4. The data elements shown in positions 101-175 are entered for each quarter (positions 101-175 are entered for the quarter ending 7609).

TABLE 6. AUTHORIZED AND ASSIGNED PERSONNEL BY UNIT IDENTIFICATION CODE (UIC), DATE AND RATING

SPRUANCE CLASS QUARTER ENDING 7609

RATING		UIC-674			875			929			677			829			679	
	Auth		# As- % signed Manned	Auth	# # As- % Auth signed Manned	% Manned	# Auth	# As- signed	% Manned	* Auth	# As- signed	% Manned	# Auth	# As- signed	% Manned	Auth	# As- signed	Manned
Ш	35	27	77.1	35	27	1.77	35	30	85.7	35	56	74.3	31	31	100.0	35	36	102.9
SO	0	0	0.0	Ŋ	Ŋ	100.0	0	0	0.0	0	0	0.0	ល	7	140.0	0	0	0.0
M	9	ω	80.0	σ	7	77.8	o	10	111.1	63	10	111.1	σ	ω	88.9	σ	5	122,2
N.	cu	ın	250.0	Q	ro	250.0	Q	ო	150.0	ณ	m	150,00	ณ	Q	100.0	໙	ເລ	250.0
ET	10	α	20,0	10	-	10.0	10	Q	20.0	10	-	10.0	7	-	9.1	6	cu ·	20.0
Ħ		-	100.0	-	0	0.0	-	0	0.0	-	-	100.0	-	0	0.0	-	0	0.0
FTG	6	4	44.4	10	ω	80.0	10	ល	50.0	10	Ŋ	50.0	9	ເດ	50.0	9	10	100.0
FTM	2	19	90.5	19	18	94.7	19	2	110,5	٣	19	90°2	17	19	111.8	ស	2	100.0
E E	4	໙	50.0	4	ณ	50.0	4	-	25.0	4	ო	75.0	4	ณ	50.0	4	4	100.0
토	Ø	13	144,4	ω	13	162,5	œ	15	187.5	œ	~	137.5	œ	15	187.5	ω	12	150.0
IC	9	7	116.7	9	7	116.7	ω	വ	83,3	വ	89	160.0	φ	œ	133,3	9	7	116.7
STG	14	7	50.0	12	12	100.0	13	£	84.6	13	13	100.0	12	12	100.0	13	o	69.2
TOTAL	2	95	78.5	121	105	86.8	117	103	88.0	118	100	84.7	116	110	94.8	118	117	88.3

TABLE 6. AUTHORIZED AND ASSIGNED PERSONNEL BY UNIT IDENTIFICATION CODE (UIC), DATE AND RATING (CONTINUED)

SPRUANCE CLASS QUARTER ENDING 7609

RATING		089-DIU			681			682			683			684			685	
	# Auth	# As- signed	% Manned	Auth	# As- signed	% Manned	# Auth	# As- signed	% Manned	* Auth	# As- signed	% Manned	# Auth	# As- signed	% Manned	# Auth	# As- signed	Manned
18	34	34	100.0	34	34	109.7	35	98	102.9	35	31	988.6	34	30	88.2	36	28	77.8
DS	0	0	0.0	ဖ	မွ	100.0	0	0	0.0	0	0	0.0	0	0	0.0	ល	0	0.0
Ŧ	o	10	111.1	10	σι	90.0	6	o	100.0	တ	7	77.8	တ	‡	122,2	10	o I	0"06
EN	Q	ო	150.0	Q	ເລ	250.0	ณ	വ	250.0	cu	໙	100.0	Q	ო	150.0	ณ	4	200.0
ᆸ	2	-	10.0	7	-	9.1	10	0	0.0	10	۴-	10.0	7	-	9.1	#	Q	18.2
F	-	۲	100.0	-	-	100.0	«-	0	0.0	~	٢	100.0	-	-	100.0	~	-	100.0
FTG	6	ល	55.6	10	ω	80.0	10	9	60.0	10	9	0.09	10	Ŋ	50.0	ω	7	87.5
FTM	2	17	81.0	16	13	81.2	24	50	95.2	۲	2	100.0	۲	17	81.0	17	19	111.8
EM.	4	ณ	50.0	ω	Q	25.0	4	m	75.0	4	-	25.0	4	αı	50.0	4	ผ	50.0
토	æ	1	137.5	တ	10	111.1	80	5	150.0	80	13	162,5	œ	-	137.5	10	15	150.0
IC	ဖ	9	100.0	ဖ	7	116.7	9	ထ	100.0	9	ဖ	100.0	ဖ	ထ	100.0	9	7	116.7
STG	5	10	76.9	15	12	0.08	13	10	76.9	12	13	108.3	13	16	123.1	12	7	91.7
TOTAL	117	100	85.5	125	108	86.4	119	107	89.9	118	102	86.4	119	103	98.6	122	105	86.1

TABLE 6. AUTHORIZED AND ASSIGNED PERSONNEL BY UNIT IDENTIFICATION CODE (UIC), DATE AND RATING (CONTINUED)

SPRUANCE CLASS QUARTER ENDING 7609

								ECAN III	WWATER ENDING 7003	2007								
RATING		01C-686			687			889			969			691			T0T	
	# Auth	# As- signed	# # As- % Auth signed Manned	Auth	# As- % signed Manne	% Manned	# Auth	# As- signed	% Manned	Auth	# As- signed	% Manned	* Auth	# As- signed	% Manned	# Auth	# As- signed	% Manned
阳	35	36	102.9	93	34	100.0	35	35	100.0	35	52	71.4	35	31	88.6	783	704	89.5
SQ	Ω	0	0.0	ĸ	7	140.0	0	0	0.0	0	0	0.0	0	0	0.0	9	52	80.6
E N	1	6	90.0	6	1	111.1	တ	o	100.0	7	o	128.6	o	12	133.3	210	216	102.9
EN	CV.	വ	250,00	Ct	ဖ	300.0	ณ	4	200.0	લ	4	200.0	Q	ဖ	300°0	46	83	202.2
Н	7	~	9.1	7	-	9.1	10	~	10.0	10	-	10.0	10	0	0.0	238	52	10.5
E	-	-	100.0	_	0	0.0	_	-	100.0	-	ณ	200.0	-	0	0.0	23	17	73.9
FTG	æ	ω	100.0	10	7	70.0	10	Ŋ	50.0	9	4	40.0	6	5	111.1	225	146	64.9
FIE	17	23	135.3	16	18	112.5	2	19	90.5	۲	15	71.4	8	50	111.1	450	441	98.0
GMT	4	Q	50.0	4	ณ	50.0	ហ	ณ	40.0	4	a	50.0	4	ო	75.0	97	64	50.5
보	10	14	140.0	ω	4	175.0	æ	13	162.5	8	13	162,5	œ	13	162.5	192	289	150.5
IC	ဖ	6	150.0	ω	Ø	150.0	9	7	116.7	9	^	116.7	ထ	9	100.0	137	161	117.5
STG	15	14	118.7	12	6	75.0	13	Ø	69.2	6	^	53.8	13	တ	69.2	598	253	84.9
TOTAL	된	122	100.8	115	114	99.1	120	105	87.5	117	83	76.1	115	110	95.7	2730	2416	88.5

APPENDIX: SOFTWARE AND PROGRAM DOCUMENTATION

EXTRACT BON

MA TCHMRE BOM

```
// Museffg JOB (3 420 * 3 7 3 3 3 ) * K ING * * CLASS = F

// * MAIN ORG = RMT01 * PROC = 20 * R RNGC + K = NO

// ENCC MATCHARG

// ENCC MATCHARG

// DUMITCH SYSIN DD * 1

DCL N = 'M R SSN * P = 1

DCL N = 'M R SSN * P = 1

DCL N = 'M R A SY R * P = 1

DCL N = 'M A A SY R * P = 1

DCL N = 'M A A SY R * P = 1

DCL N = 'P A SY R * P = 1

DCL N = 'P A SY R * P = 1

DCL N = 'P A SY R * P = 1

DCL N = 'P A SY R * P = 1

DCL N = 'P A SY R * P = 1

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DCL N = 'P A SY R * P = 1

DCL N = 'P A SY R * P = 1

DCL N = 'P A SY R * P = 1

DCL N = 'P A SY R * P = 1

DCL N = 'P A SY R * P = 1

ON (LT, NA) DO;

M SSN TO P SSN;

M TRECORD TO P A SY R * P = 1

LOW (100) TO P MASTER;

WRITE (P) FROM (P);

NOM 1 TO NOM(0 * 4 * 4 * );

END;

ON (NA, LT) DO;

MA SSN TO P SSN;

M A C S S N * P A SY R * P A
```

```
923 3 S 0 925 3
```

```
N='P31P40'

N='B4SD'59'

N='P61P62'

N='P11P13'

N='P11P13'

N='P31P40'

N='P31P40'

N='P31P40'

N='P63P59'

N='P61P62'

N='P61P62'

N='P61P62'

N='P61P62'
                                                              P=1481 W=10;
F=1498 W=3;
P=1503 W=7;
P=1511 W=2;
P=1511 W=2;
P=1561 W=3;
P=1562 W=3;
P=1572 W=2;
P=1572 W=1;
P=1581 W=10;
P=1581 W=10;
P=1683 W=7;
P=1611 W=2;
P=1611 W=2;
P=1611 W=500;
```

EXRECODE CNA

EXPECODE CHA

```
DCF
T=2;
T=2;
T=6;
T=2;
                                                             T= 2:
T= 2:
T= 2:
T= 6:
T= 2:
T= 2:
                                                             T= 2;
T= 2;
T= 2;
T= 2;
T= 6;
T= 2;
T= 2;
T= 2;
                                                             T=2:
T=2:
T=2:
T=2:
T=2:
                                                           T=2;
T=2;
T=2;
```

```
DCL
T = 2
```

EX RECODE CNA

```
7*****

OCCUPATION OF THE STANDARD STAN
                                                                                                                     17890123451234567890123456789012
178901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678
                                                                    DCT
DCT
DCT
                                                DCT
DCT
DCT
```

```
1234523456789012 451234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890
                                                                                  L=1
L=1
L=1
L=1
L=1
L=1
                                                                                                  DCT
                                                      P
 DCT
DCT
DCT
                                                                                                     DCL
 DCL
DCL
DCL
 DCT
DCT
DCT
 DCL
P=631
P=632
P=633
P=634
P=635
P=651
```

```
DCL
T= 2;
T= 2;
T= 2;
T= 2;
T= 2;
T= 2;
```

```
TITLE THE HEAD TO NOT THE HEAD TO NOT THE HEAD TO NOT THE HEAD TO NOT THE HEAD THE HEAD THE HEAD TO NOT THE HEAD T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 89012345123456789012234523456789012 451234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678
           DCT
DCT
DCT
DCT
DCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DCL
     DCF
     DCL
DCL
DCL
     DCF
           ĎČĽ
     DCL
DCL
DCL
           DCL
DCCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DCL
     DCT
```

```
DČĒ
   P=1053
```

```
DCF
     T=2;
T=2;
T=2;
T=2;
T=2;
DCL
DCF
DCL
DCL
DCL
DCL
DCL
T=2;
T=6;
T=2;
T=2;
T=2;
                                       T=6;
T=2;
T=2;
T=2;
```

```
N=*RTNEC26* P=1322 L=1 T=
N=*BASOM26* P=1322* L=1 T=
N=*DOPPGM26* P=1322* L=1 T=
N=*DOPPGM26* P=1322* L=1 T=
N=*PODEY26* P=1322* L=1 T=
N=*PODEY26* P=1323* L=1 T=
N=*PODEY26* P=1323* L=1 T=
N=*PODEY26* P=1333* L=1 T=
N=*PAGGTY26* P=1333* L=1 T=
N=*PAGGTY26* P=1333* L=1 T=
N=*PAGGTY26* P=1333* L=1 T=
N=*PAGGTY26* P=1335* L=1 T=
N=*PAGGTY26* P=1355* L=1 T=
N=*PAGGTY27* P=1355* L=1 T=
N=*PAGGTY27* P=1355* L=1 T=
N=*PAGGTY27* P=1356* L=1 T=
N=*PAGGTY27* P=1357* L=1 T=
N=*PAGGTY27* P=1357* L=1 T=
N=*PAGGTY27* P=1358* L=1 T=
N=*PAGGTY27*
```

```
RAFQT
RMNTCAT
RENORMF
ETSY01
ETSM01
HYEC01
AFQT01
DOBY01
DOBM01
DOBD01
MS01
```

```
TO R(07685,16,6);
TO R(0701,2,7,,,99,);
TO R(0705,2,7,,,99,);
TO R(0705,2,7,,,99,);
TO R(0705,2,7,,,99,);
TO R(0707,2,7,,,99,);
TO R(0713,2,7,,,99,);
TO R(0715,2,7,,,99,);
TO R(0715,2,7,,,99,);
TO R(0715,2,7,,,99,);
TO R(0719,2,7,,,99,);
TO R(0724,2,7,,,99,);
TO R(07250,2,7,,,99,);
TO R(0745,2,7,,,99,);
TO R(0745,2,7,,,99,);
TO R(0745,2,7,,,99,);
TO R(0745,2,7,,,99,);
TO R(0746,2,7,,,99,);
TO R(0746,2,7,,,99,);
TO R(0776,2,7,,,99,);
TO R(0876,2,7,,,99,);
TO R(0887,2,7,,,99,);
```

```
TO R (10930.2.77...99...)

1 TO R (10990.2.77...99...)

2 TO R (10990.2.77...99...)

1 TO R (10900.2.77...99...)

1 TO R (10000.2.77...99...)

1 TO R (10000.2.77
```

```
AF 0721
PG21
DOBY21
DOBBH21
DOBBH21
DOBB121
DOS21S21
DOS21S
```

```
TO R(1701,2,7,,,99*);
TO R(1711,2,2,7,,,99*);
TO R(1711,2,2,7,,,99*);
TO R(1712,2,7,,,99*);
TO R(1712,2,7,,,99*);
TO R(1721,2,7,,,99*);
TO R(1721,2,7,,,99*);
TO R(1725,2,7,,,99*);
TO R(1725,2,7,,,99*);
TO R(1731,2,7,,,99*);
TO R(1731,2,7,,,99*);
TO R(1755,2,7,,,99*);
TO R(1755,2,7,,,99*);
TO R(1755,2,7,,,99*);
TO R(1755,2,7,,,99*);
TO R(1755,2,7,,,99*);
TO R(1756,2,7,,,99*);
TO R(1757,2,7,,,99*);
TO R(1761,2,7,,,99*);
TO R(1761,2,7,,,99
```

```
AFQT 25
TO R(119113.2.7...99*)
TO R(119113.2.
```

```
YADTY27 TO R(2100,2,7,,0990);
ITG27 TO R(2102,2,7,0,990);
VRBM27 TO R(2104,2,7,0,990);
PROPY27 TO R(2104,2,7,0,990);
SCGRP27 TO R(210,2,7,0,990);
REST27 TO R(2110,16,6);
//PLI.SYSPRINT DO DUMMY
//GO.FILE1 DD DSN=DD963.EN.P7605.P8303,UNIT=3400-5,DISP=OLD,
// VOL=SER=K05256
//GO.FILE2 DO DSN=DD963.P7609.P8303,UNIT=3400-5,DISP=(NEW,KEEP),
// DCB=(LRECL=2125,BLKSIZE=2125(,PECFM=FB),VOL=SER=K07620
```

BOM SHIPS

```
TAB FOR BOM-COUNTS BY UIC, DATE, RATING, GRADE. OUTPUT TAPE.
 OCL IN1 RECORD SEQUENTIAL BUFFERED INPUT ENV (CONSECUTIVE FBS TOTAL RECSIZE (1400) BLKSIZE (14000) BUFFERS(2)),
OUT RECORD SEQUENTIAL BUFFERED OUTPUT ENV (CONSECUTIVE FBS TOTAL RECSIZE (54) BLKSIZE (13014) BUFFERS(2)),
SYSPRINT FILE OUTPUT PRINT;
                              INPUT FORMATS
 DCL (11,12) POINTER;
DCL 1 IN REC BASED (11),
2 F1 CHAR(50), /* 1 -50
2 Y(27),
                                                              11 -54 */

15 - 64 */

15 - 67 */

18 - 84 */

18 - 87 */

18 - 100 */
             3 F2
3 PG IN
3 F3
3 RT IN
3 F4
                                    CHAR(04), /*
CHAR(01), /*
CHAR(09), /*
CHAR(03), /*
              3 UIC_IN
                                    CHAR(03) /*
CHAR(13) /*
  DCL A( 17, 27, 73, 10 ) FIXED BIN(31); /* UIC, DATE, RATING, PAYGRADE */
 DCL(SUM, SUBSTR) BUILTIN;
DCL (IN CTR, OUT CTR) FIXED BIN (31) INIT(0B);
DCL BPG FIXED BIN(15) INIT(0B),
CPG CHAR(1) DEF BPG POS(2);
  DCL (I,UIC,PG,RT,YR) FIXED BIN(15) INIT(08);
 DCL DATE (27) FIXED BIN(31) INIT(7609,7612, 7703,7706,7709,7712,7803,7806,7809,7812,7903,7906,7909,7912, 8003,9106,8009,8012,8103,8106,8109,8112,8203,8206,8209,8212, 8303);

DCL UIC_A(17) CHAR(03) INIT(*574*,*575*,*576*,*586*,
          UIC_A(17) CHAR(03) INIT(*574*,*575*,*576*,*586*,
*588*,*589*,*590*,*591*,
*598*,*599*,*600*,*601*,*602*,*603*,*604*,*611*);
  DCL RATING_A(73) CHAR(3) INIT(4AA
                                                                AD
                                                                DA DOSH EN
                                                                 ETN ,
```

```
BO M
                                                               SHIPS
DCL L(6) CHAR(33) INIT(10
                                            DD9 63 CLASS SHIPS PERSONNEL **,
BY
UIC, DATE, RATING & PAYGRADE **,
DCL OUT STR CHAR(54);
DCL BIN_FIELD FIXED BIN(15) INIT(08),
CBIN_CHAR(2) DEF BIN_FIELD;
ON ENDFILE(IN1) BEGIN; GO TO SUMMARY; END;
ON ENDPAGE CALL HDG;
OPEN FILE(IN1), FILE(SYSPRINT) LINESIZE(132) PAGESIZE(80);
                                      BEGIN INFUT PROCESSING
A=0 1
READ_NEXT_RECORD:
  READ FILE(IN1) SET(I1); IN_CTF = IN_CTR + 1;
 DO I = 1 TO 27;

DO UIC = 1 TO 17;

IF SUBSTR(Y(I).UIC_IN.1.2) = CBIN THEN GO TO NEXT1;

IF Y(I).UIC_IN = UIC_A((IC) THEN LEAVE;
```

/* CHECK PAYGRADE */

END F UIC > 17 THEN GO TO MEXT1:

BDM SHIPS

```
CPG=Y(I).PG IN;

IF BPG = 0 THEN LEAVE;

DO PG = 1 TO 9;

IF PG = 3 PG THEN LEAVE;
                        END F PG > 9 THEN GO TO NE )T1;
                        IF SUBSTR(Y(I).RT_IN.1,2) = CBIN THEN GO TO NEXT1;

DO RT = 1 TO 72;

IF Y(I).RT_IN = RATING_A(RT) THEN LEAVE;

END:
                         END
                                          IF RT > 72 THEN GO TO NEXT1 :
                     A(UIC, I, RT, PG) = A(UIC, I, RT, PG) + 1;

PUT DATA(A(UIC, I, RT, PG)); IF IN_CTR > 25 THEN GO TO

SUMMARY;
      CND:
GO TO READ NEXT RECORD:
SUMMARY
    DO UIC = 1 TO 17;

DO YR = 1 TO 27;

DO PG = 1 TO 10;

A(UIC, YR, 73, PG) = A(UIC, YR, 73, PG) + SUM(A(UIC, YR, +, PG));
                                  I CN3
PRINT OUTPUT

DO UIC = 1 TO 17;

DO YR = 1 TO 27;

DO RT = 1 TO 73;

IF RT=1 & A(UI(,YR,73,10) > C THEN

CALL HDG;

IF A(UIC,YR,RT,10) < 1 THEN GG TO NEXT2;

IF A(UIC,YR,RT,10) < (A(UIC,YR,RT,1) DO I= 1 TO 10))

ELSE

PUT EDIT (RATING, ACOL(11),10(X(5),P*Z,ZZ9*));

PUT STRING(OUT STR) EDIT( UIC A(UIC), DATE(YR),

RATING A(RT), A(UIC,YR,RT,1),

A(UIC,YR,RT,2),

A(UIC,YR,RT,3),

A(UIC,YR,RT,3),

A(UIC,YR,RT,4),

A(UIC,YR,RT,7),

                END:
         NEXT2: END !
        END!
         DCL PG_CTR FIXED BIN(31)INIT(0E);
HDG: PROC;
PG_CTR = PG_CTR + 1;
PUT_PAGE; PUT_EDIT(*PAGE- '*,PG_CTR,*DMDC-83F73333*)

(COL(98),A,PYZZ9*);

PUT_EDIT((L(I) DO I=1 TO (*)(SKIP(1),COL(40),A);
PUT_EDIT(*SHIP - N20*,UI(_A(UIC))

(S(IP(2),COL(49),A,P*999*)

(*DATE - *,DATE(YF))(SKIP(2),COL(50),A,P*9999*)
```

BOR SHIPS

BD M SHIPS37

```
//MUSHFORZ JOB (3420.3F7333), HING, CLASS=C
//*FORMAT PR.DDNAME=, DEST=RMT01
//*MAIN PROC=20, RINGCHK=NO.ORG=FMT01. LINES=(7)
// EXEC PLIXCLG, PARM-PLI='A(F). LC(80), MAP(2,72), MI(**|**), NEST. X(F)*,
// PARM.LK=D='NJLIST, NGMAP, NOX FEF*, REGION=1500K
//*EXEC PLIXC
//PLI.SYSPRINT DD DUMMY
//PLI.SYSIN DD *
SHIPS: PROC OPTIONS (MAIN) REOFDER;
                                                         TAB FOR BDM-COUNTS AND X OF AUTHORIZED, ASSIGNED & MANNED PERS.
BY UIC, DATE RATING, GRADE.
                                            TAB FOR BDH-COUNTS AND Y OF ALTHORIZED, ASSIGNED & MANNED PERS.

BY UIC, DATE (RATING, GRADE.)

IN RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS TOTAL RECORD SEQUENTIAL BLF FERED INPUT ENV (CONSECUTIVE FBS T
           DCL IN1
```

INPUT FORMATS

BDM SHIPS37

```
OCL (I1,I2) POINTER;
OCL 1 IN REC BASED (I1),
2 FILL1 1
2 RT IN
2 FILL1 3
2 UIC IN
2 FILL1 4
                                                                    CHAR
CHAR
CHAR
CHAR
                                                                              (33),
(03),
(35),
(03),
(76);
DCL A( 58, 11, 2) FLOA1 BIN(31); /* RATING, UIC. N,x */
DCL RECORD CHAR(22);
DCL(SUM,SUBSTR) BUILTIN;
DCL (IN_CTR,OUT_CTR,REC2) FIXE( BIN(31) INIT(0B);
DCL (I.UIC.RT.YR) FIXED BIN(15)
DCL (AUTH_CNT)(11) FIXED BIN(31)
                                                                  INIT(18);
INIT(18);
DCL DATE (27) FIXED BIN(31) INIT(7609,7612, 7703,7706,7709,7712,7803,7806,7809,7812,7903,79,6,7909,7912, 8003,8006,8009,8012,8103,8106,8109,8112,8203,8206,8209,8212, 8303);

DCL UIC A(11) CHAR(03) INIT(*231*,*232*,*233*,*234*, *235*,*236*,*683*,*684*,*665*,*686*,*TOT*);
DCL RATING_A(58) CHAR(3) INIT(
                                                               BH TO THE TENT
                                                          ST, TOK THM
                     'ETR', 'ETN', 'STS
'AD ', 'AG ', 'AO
', 'NC ', 'PC ', 'PN
                                                                                   + HR
+ AR
+ SR
DCL
                                                               EIN(15)
10,6,12,
10,0,0,0
```

BDM SHIPS37

```
DCL L(6) CHAR(33) INIT(***
                                                                                                                                                                                                             DDG 37 CLASS SHIPS PERSCHNEL-
ALTHORIZED, ASSIGNED, MANNED
BY
UIC, DATE, RATING
                  DCL (N1, N2) FIXED BIN(15) INIT((B);

OCL AUTHORIZED PIC (1999);

**ON ENDFILE (IN1) BEGIN; CALL SUMMARY; GO TO EOJ; END; */
CLOSE FILE (IN1); OPEN FILE (IN2); GO TO READ1; END;
CLOSE FILE (IN2); OPEN FILE (IN2); GO TO READ1; END;
CLOSE FILE (IN3); OPEN FILE (IN2); GO TO READ1; END;
ON ENDFILE (IN3); DEGIN; CALL SUMMARY; TAB=3;
OLOSE FILE (IN3); DECEN FILE (IN2); GO TO READ1; END;
ON ENDFILE (IN3); DECEN FILE (IN2); GO TO READ1; END;
OLOSE FILE (IN3); DECEN FILE (IN2); GO TO READ1; END;
OLOSE FILE (IN3); OPEN FILE (IN2); GO TO READ1; END;
OLOSE FILE (IN3); OPEN FILE (IN2); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN2); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN2); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN2); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN2); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN2); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN2); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN2); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN2); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN2); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN2); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN2); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3); OPEN FILE (IN3); GO TO READ1; END;
ON ENDFILE (IN3);
                  DCL(N1,N2) FIXED BIN(15) INIT((B);
DCL AUTHORIZED PIC+999+;
     ON ENDPAGE CALL HDG;
OPEN FILE(IN1), FILE(SYSPRINT) LINESIZE(132) PAGESIZE(80);
                                                                                                                                                                 BEGIN INFUT PROCESSING ..
```

BOM SHIPS37

```
READ1:
A=0; AUTH_CNT=0; AUTH_NUM=0;
READ_NEXT_RECORD:
 SELECT (TAB);
WHEN(1)
                  READ FILE(IN1) SET(I1); IN_CTR = IN_CTR + 1; END;
        WHEN (2)
                  READ FILE(IN2) SET(I1); IN_CTR = IN_CTR + 1; END;
        WHEN(3)
                  READ FILE(IN3) SET(I1); IN_CTR = IN_CTR + 1; END;
        WHEN ( 4
                  READ FILE (IN4) SET (II); IN_CTR = IN_CTR + 1; ENO;
                  READ FILE(IN5) SET(I1); IN_CTR = IN_CTR + 1; END;
        WHEN(5)
                  READ FILE(IN6) SET(I1); IN_CTR = IN_CTR + 1; END;
                  READ FILE(IN7) SET(I1); IN_CTR = IN_CTR + 1; END;
        WHEN CA
                  READ FILE(IN8) SET(I1); IN_CTR = IN_CTR + 1; END;
                  RFAD FILE(IN9) SET(I1); IN_CTR = IN_CTR + 1; ENO;
                  READ FILE(IN10) SET(I1); IN_CTR = IN_CTR + 1; END;
                  READ FILE(IN1) SET(I1); IN_CTR = IN_CTR + 1; END;
                  READ FILE(IN12) SET(I1); IN_CTR = IN_CTR + 1; END;
                  READ FILE(IN13) SET(I1); IN_CTR = IN_CTR + 1; END;
                  READ FILE(IN14) SET(I1); IN_CTR = IN_CTR + 1; END;
                  READ FILE(IN15) SET(I1); IN_CTR = IN_CTR + 1; END;
                  READ FILE(INIE) SET(I1); IN_CTR = IN_CTR + 1; END;
                  READ FILE (IN17) SET(I1); IN_CTR = IN_CTR + 1; END;
                  READ FILE(IN1 E) SET(I1); IN_CTR = IN_CTR + 1; END;
                 READ FILE(IN15) SET(I1); IN_CTR = IN_CTR + 1; END;
       WHEN (20)
                 READ FILE(IN2:) STT(I1); IN_CTR = IN_CTR + 1; END;
       WHEN(21)
                 READ FILE(IN21) SET(I1); IN_CTR = IN_CTR + 1; END;
                 READ FILE(IN22) SET(I1); IN_CTR = IN_CTR + 1; END;
                 READ FILE(IN23) SET(I1); IN_CTR = IN_CTR + 1; END;
       WHEN (24)
                 READ FILE(IN24) SET(I1); IN_CTR = IN_CTR + 1; END;
                 READ FILE(IN25) SET(I1); IN_CTR = IN_CTR + 1; END;
       WHEN(26)
00;
WHEN(27)
                 READ FILE(IN26) SET(I1); IN_CTR = IN_CTR + 1; END;
                 READ_FILE(IN27) SET(II); IN_CTR = IN_CTR + 1; END;
       OTHERWISE STOP:
   DO UIC = 1 TO 10; IF UIC_IN = UIC_A(UIC) THEN LEAVE;
                                                CHECK UIC
   IF UIC > 10 THEN GO TO MEXT1;
                                             CHECK RATINGS
   DO RT = 1 TO 57;
____IF RT_IN = RATING_A(RT) THEN LEAVE;
   END: IF RT > 57 THEN GO TO NEXT1;
SELECT(RT_IN);

WHEN(*ETR*, *ETN*) DO; RT_IN=*ET *; RT=6; END;

WHEN(*STS*) DO; RT_IN=*ST 6*; RT=28; END;
```

BOM SHIPS37

```
WHEN("FR ","FA ") DO; RT IN="FN "; RT=8; END;
WHEN("SR ","SA ","AA ","XF ","AN ") DO; RT IN="SN "; RT=27; END;
WHEN("DK ","HM ","HN ","HK ","HA ","JO ","HA ","
"AD ","AG ","AO ","BL ","CM ","AMS","NC ",
"PC ","PN ","YN ") DC; RT_IN="SN "; RT=3C; END;
OTHERWISE RT_IN = RT_IN;
  SUMMARY: PROC;

D) UIC = 1 TO 10;

D) RT = 1 TO 58;

AUTH NUM(11,RT) = AUTH NUM(11,RT) + AUTH NUM(UIC,RT);

AUTH NUMTUIC,RT) = A (TH_NUM_CNT(UIC,RT);

AUTH NUM( 11,RT) = A (TH_NUMT) + AUTH NUM CNT(UIC,RT);

AUTH CNT(UIC) = AUTH CNT(UIC) + AUTH NUM CNT(UIC,RT);

AUTH CNT(UIC) = AUTH CNT(UIC) + AUTH NUM CNT(UIC,RT);

END;
                                                                         /* TOTAL RATING COLUMN */
              DO UIC = 1 TO 11;
A(58,UIC,1) = A(58,UIC,1) + SUM(A(*,UIC,1));
                                                                    /* TOTAL SHIP */
/* TOTAL SHIP UIC */
/* TOTAL UIC COLUMN */
              DO RT = 1 TO 58;
A(RT,11,1) = A(RT,11,1) + SUM(A(RT,*,1));
             DO RT = 1 TO 58;

DO UIC = 1 TO 11;

IF AUTH NUM(UIC,RT) > 0 THEN

A(RT,UIC,2)=(A(RT,UIC,1)/

A(TH_NUM(UIC,RT))+100 +.05;
             DO UIC = 1 TO 11;

IF AUTH_CNT(UIC) > 0 THEN

A(58,UIC,2)=(A(50,UIC,1)/

AUTH_CNT(UIC))·100+.05;
                                                              PRINT OUTPUT
 N1 = 1; N2 = 6;
CALL HDG;
CALL PRINT_PROC;
N1= 7; N2=11;
CALL HDG;
CALL PRINT PROC;
/*CALL PLOT OP; /
END; /* SUMMARY PROC */
                                                                        ENC OF FILE PROCESSING **********
DCL PG CTR FIXED BIN(31)INIT(0 E);
HDG: PROC;
PG CTR = PG CTR + 1;
PUT PAGE:PUT EDIT('PAGE- ',PG CTR,*DMDC-83F73333*)

PUT EDIT((L(I) DO I=1 TO E))(SKIP(1),COL(49),A);
PUT EDIT('DATE - *,DATE(1AB))(SKIP(2),COL(61),A,P*9999*);

CALL HDG2;
END; /* HEADING PROC */
HDG2: PROC;
DCL DASH CHAR(128) INIT((128) *);
FMT1: FORMAT(SKIP(1) COL(2) A);
PUT EDIT(DASH)(R(FHT1)); FUT SKIP;
IF N1=1 THEN DO;
PUT EDIT(*DOG37 RATING
                                                                                                            UIC-52 , UIC_A (V1),
```

BDM SHIPS37

```
UIC_A(N1+1), UIC_A(N1+2), UIC_A(N1+3), UIC_A(N1+4), UIC_A(N1+5))
(SKIPT1), COL(2), A, A, 5(X(14), A))
(DASH)(SKIP(1), COL(26), A(104))
(*)*, NPC)(SKIP(1), COL(26), A, A)
(*)*, AM)(COL(26), F, A)
(DASH)(SKIP(0), COL(2), A); PUT SKIP;
                                    PUT EDIT(*DDG37 RATING UIC-52*,UIC_A(N1),
UIC A(N1+1),UIC_A(N1+2),UIC_A(N1+3),UIC_A(N1+4))
(SKIP(1),COL(2),X,A,4(X(14),X))
(OASH)(SKIP(1),COL(26),A(1C4))
(*]*,NPC,* TOT AVGX; (*)
($CIP(1),COL(26),A,A(69),A)
(*]*,AM)(COL(26),A,A(69),A)
(DASH)(SKIP(0),COL(2),A);PUT SKIP;
D:
               FND: /* HDG2 PROC */
   END;
  PRINT PROC: PROC;

FMT2:FORMAT(SKIP(1),COL(16),A,COL(25),6(X(2),P*ZZZ9*,P*ZZZ9*,

X(2),P*ZZ9V,3*));

FMT3:FORMAT(SKI)(1),COL(16),A,COL(27),

P*ZZZ9*,F*ZZZ9*,X(2),P*ZZ9V,9*,);

5(X(2),P*ZZZ9*,F*ZZZ9*,X(2),P*ZZ9V,9*,);
                      PUT EDIT
                      ELSE DO;

PUT EDIT(RATING A(RT), (AUTH CNT(UIC),

A(RT, UIC, 1), ATRT, UIC, 2) DU UIC=N1 TO N2))

(R(FMT2)); PUT SKIP;

CALL CALL2;
                      END
  END:
  CALL1: PROC;
AUTHORIZED = AUTH_NUM(UIC,RT); CALL WRITE1;
END;
 CALL2: PROC; AUTHORIZED = AUTH_CNT(UIC); (ALL WRITE1; END;
WRITE1: PROC;

OCL UIC FIXED BIN(15) INIT(0B);

OU UIC = N1 TO N2;

IF UIC = 11 THEN GO TO END1;

PUT STRING(RECORD) EDIT(UIC /(UIC))(A(3),X(1))

(DATE(TAB))(F*9999*)

(RATING A(FT))(A(3))

(AUTHORTZEC)(P*999*)

(A(RT,UIC,1))(P*9999*);

WRITE FILE(OUT) FROM (RECORD);

WRITE FILE(OUT2) FROM (RECORD);

UT CTR = OUT_CTR + 1;

END;

END;
 END: /* WRITE1 */
 ENDI
//-go.sysprint dd dummy
//go.ini od disp=shr,dsn=mrdc.whkxxx.ddg37.p7609
```

BOM SHIPS37